****

**Course Syllabus: AP PHYSICS B**

**Hanna High School 2013-2014**

**Teacher:** Mr. Arrambide earrambide@bisd.us

**Room:** S205

**Conference Period:** 9TH 3:20-4:05 PM

**Phone:** Hanna High School (956) 548-7600

**Course description:**

This course provides an introduction to both classical and modern physics. By taking AP Physics B, you will have to pass the AP exam to receive college credit. The course focuses on developing conceptual understanding and problem-solving abilities using algebra and trigonometry.

This college-level physics course will cover Newtonian mechanics, thermodynamics, waves, sound, optics, electricity, magnetism, atomic physics, nuclear physics, and special topics. Students will build upon their previous science and mathematics courses and as a result gain content knowledge and appreciation of the concepts of Physics, science and technology. Technology-rich and inquiry based labs will help students to understand the concepts covered in the course and deepen the understanding of scientific methodology.

**Course Goals and Expectations:**

Students are expected to spend at least five hours a week on homework or independent studies in addition to a daily 45-minute class period. Read the textbook and stay ahead of your instructor’s lecture. Be early, not late for class, focused and ready. Please **turn off** cellular phones during class.

**Textbook:**

Serway. “Essentials of College Physics”. USA. Thompson. Brooks/Cole. 2007.

**Course content:**

**The following topics will be covered in this course.**

1. **Newtonian Mechanics**
   1. Kinematics (1 and 2 dimensions)
   2. Newton’s Laws of Motion
   3. Work, Energy and Power
   4. Systems of particles, Linear momentum
   5. Circular Motion and Rotation
   6. Oscillations and gravitation
2. **Fluid Mechanics and Thermal Physics**
   1. Fluid Mechanics
   2. Temperature and Heat
   3. Kinetic theory and thermodynamics
3. **Electricity and Magnetism**
   1. Electrostatics
   2. Conductors, capacitors, dielectrics
   3. Electric Circuits
   4. Magnetic Fields
   5. Electromagnetism
4. **Waves and Optics**
   1. Wave motion (including Sound)
   2. Physical optics
   3. Geometric optics
5. **Atomic and Nuclear Physics**
   1. Atomic physics and quantum effects
   2. Nuclear Physics

**Skills to be learned:**

This course will develop skills essential for success in high school, in college or university studies in general. This course will help you to comprehend and explain the phenomena that occur in your environment. By choosing to take this course, you have committed to meet the following expectations:

1. Learn, analyze, identify, synthesize, and manipulate knowledge and skills;

2. Think critically;

3. Budget time effectively and efficiently—expect homework daily;

4. Develop successful study skills;

5. Engage in electronically-assisted research and/or communications;

6. Develop multi-media and oral presentation skills;

7. Apply physics knowledge to specific fields, such as medicine and technology;

8. Apply scientific reasoning inside and outside the classroom;

9. Demonstrate writing skills;

10. Fulfill an honor code commitment.

**Materials:**

*Bring to class every day*

* Pencil, pen and paper.
* Scientific calculator (calculators will be available in the classroom) but one is needed for homework assignments.
* Binder for this class.

**Grading:**

*Your grade will be determined as follows:*

For each six weeks progress report the average of the major assessments (at least three) will count twice as much as the average of the minor assessments (at least five

**Make-up work, tests and retest:**

* ***No late work will be accepted (homework, projects, etc).***
* For AP classes, if you have a failing grade on a test you can request a retest. It has to be taken no later than a week (after the original test has been taken).
* **In order to take a retest, you need to attend at least 1 tutorial session and submit test corrections. This will be your pass for taking a retest.**
* **If you fail 3 consecutive tests (and take 3 retests), I will contact your parents to let them know that you are struggling with the class and some intervention has to be done.**
* If you are absent for any reason, it is your responsibility to see me to request the work you missed.
* If you are absent the day of the test, you are responsible to take the test the day you come back.

**Cheating:**

*I do not expect cheating to occur. Copying of other students work including labs will be severely punished!* If you are caught you will automatically be given a zero with no chance of a retest.

Student’s Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date : \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Parent’s Signature \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date : \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_